<table>
<thead>
<tr>
<th>Year</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>Development of IRP Framework as a utility planning tool</td>
</tr>
<tr>
<td>1993</td>
<td>First IRP completed by Kauai Electric (KE)</td>
</tr>
<tr>
<td>1994</td>
<td>KE files DSM Detailed Tactical Implementation Plan</td>
</tr>
<tr>
<td>1997</td>
<td>PUC approves KE DSM Tactical Implementation Plan</td>
</tr>
</tbody>
</table>
DSM & Energy Efficiency Program History
1998 - 2002

- 1998 - DSM programs implemented
  - 6 DSM Programs approved
  - 3 DSM Programs implemented: 2 Residential & 1 Commercial
- 1999 - New Programs Implemented
  - Residential Retrofit Program combined with Residential Direct Install Program.
- 2002 - KE becomes KIUC.
  - KIUC continues DSM programs previously administered under KE.
  - KIUC, as a new member-owned cooperative, begins to look at new ways to provide more comprehensive energy services.
2004

- KIUC initiates a new Energy Efficiency Potential Study.
- Residential Direct Install (RDI) program is discontinued for lack of viable market.
- KIUC begins to consider ways to expand its programs beyond traditional Total Resource Cost (TRC) based DSM programs.
- New concepts for programs are presented to KIUC’s Board of Directors.
DSM & Energy Efficiency Program History
2005 - 2006

• 2005
  o Initiation of Energy Services and Member Advantage Program Development.
  o Residential programs designed to promote the Cooperative and BOD objectives.

• 2005 Tested voltage regulation technology on a distribution circuit. Switching of distribution circuit configuration proved to be a problem and limited effectiveness.

• 2006
  o Home Visits – High Bill Inquiries (HBI) program initiated, includes bill analysis tool.
  o Solar Loan – Implementation begins March 2006
  o Appliance Meter Service
## DSM & Energy Efficiency Program History
### 2007 - 2009

<table>
<thead>
<tr>
<th>Year</th>
<th>Events</th>
</tr>
</thead>
</table>
| 2007 | - Qualifying Member Appliance Replacement Program.  
| 2008 | - IRP completed and filed with the Commission.  
      - IRP features a DSM plan derived from the 2005 KEMA Energy Efficiency Potential Study.  
      - IRP not approved due to Clean Energy Scenario Planning Docket. |
| 2009 | - Light Up A Life Program – To complement Kauai Food Bank (KFB) Food Drive. |
2010

- Residential Retail Lighting Program.
  - Partnered with Ace Hardware and GE.
Commercial Retrofit Program

- Survey of the facility
  - Opportunities identified.
  - Recommendation based on TRC-based analysis.
  - Phased-in implementation planning for large facilities.
  - Energy Survey Report provided.
  - Project management support offered.

- Provides rebates of 50% to 100%
  - 50% of cost (non-free riders).
  - 80% of incremental investment cost.
  - 100% of cost for direct install lighting.
Commercial Retrofit Program

- **Federal Stimulus Funded Programs**
  - State, and County government, plus non-profit
    - 100% funding for TRC qualifying measures

- **Enhanced Services**
  - Periodic workshops for commercial accounts on various topics including, equipment and systems maintenance, emerging technologies, project financing opportunities, lighting and others.
Current Energy Efficiency Programs

- Solar Water Heating Loan Program
  - Zero interest loans provided by KIUC, local credit union, and County Housing Agency
- Solar Water Heating Rebate Program
  - $800 rebate, no TRC eligibility required
- ACE Hardware Residential Retail Lighting Program
- Light-Up-A-Life CFL Program
- Efficient Appliance Replacement Program
Current Energy Efficiency Programs

- Qualified Member Appliance Replacement Program
- Appliance Metering (Educational)
- Residential Home Visits (Educational)
- New Member Lighting Program
- Heat Pump Water Heater Rebate
- Federal Stimulus Funded Programs
  - Energy Star Refrigerator Rebate Program
  - Solar Water Heating Rental Program
### Residential Efficiency Program Accomplishments

- **CFL’s Distributed & Installed:** 76,252
- **Showerheads Installed:** 5,294
- **Faucet Aerators Installed:** 13,406
- **Water Heater Insulation:** 1,799
- **Solar Water Heaters:** 1,016
- **Heat Pump Water Heaters:** 2
- **High Bill Inquiry Home Visits:** 505
- **Qualified Member Appliance Replacement Program:**
  - Refrigerators: 43
- **Appliance Rebates:**
  - Refrigerators: 1,449
  - Clothes Washers: 1,128
  - Dishwashers: 257
## Pay As You Save

- **vs-**

### KIUC’s Zero Interest Solar Loan Program

<table>
<thead>
<tr>
<th>Solar Water Heating Savings Pilot Program</th>
<th>Solar Water Heat Loan Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Installed</strong></td>
<td><strong>Installed</strong></td>
</tr>
<tr>
<td>- 3</td>
<td>- 129</td>
</tr>
<tr>
<td><strong>Period</strong></td>
<td><strong>Period</strong></td>
</tr>
<tr>
<td>- June 1, 2007 – June 30, 2010</td>
<td>- June 1, 2007 – June 30, 2010</td>
</tr>
</tbody>
</table>
Technologies that pass Total Resource Cost analysis:

- Energy Star Room Air Conditioners
- Low Flow Shower Heads
- Pipe Wrap
- Water Heater Blanket
- Demand Hot Water Temperature Reduction
- Energy Star Clothes Washer
- High Efficiency Refrigerator - Energy Star
- CFL and halogen Lighting
- Replace-on-Burnout 2 Lamp 4’T8 w/ 1 Electric Ballast
- High Efficiency Pool Pump and Motor
DSM & Energy Efficiency Program
Beyond 2010

- Extreme interest from KIUC Board of Directors and Management.
- Home Area Network Pilot to be conducted with the island wide smart grid rollout.
- Smart meters infrastructure will allow members to better understand their demand profiles and usage.
- Evaluate potential to develop load control programs. (price responsive and load limiting)
- KIUC testing day lighting, utility pole mounted PV, small water cooled air conditioners, LED and induction lighting technologies.
DSM & Energy Efficiency Program Beyond 2010

- Working on PUC application to pilot OPOWER’s advanced customer engagement platform for Residential market.
- Incandescent bulb exchange.
- Planning to install and test load shifting air conditioner.
- Considering future rate design to facilitate increased energy efficiency and distributed generation.
Kauai Photovoltaic Panel Capacity (kW) for Members and KIUC's announced projects
Questions?

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